PLEASE ADD THE FOLLOWING NEW CLAIMS

18. (new) The connector assembly of Claim 1, further including multiple sets of differential pairs of signal contacts, said differential pairs aligned in a common plane.

19. (new) The apparatus of Claim 7 further including a plurality of impedance adjusting inserts, said inserts aligned in a common plane.

20. (new) The connector assembly of Claim 11 wherein said differential pairs are aligned in a common plane.

Remarks

Claims 1-20 are now pending in this application, including Claims 18-20 added herein. Claims 1, 3, 4, 5, 6, 7, 9, 10, 11, 14, 15 and 17 have been amended. It is respectfully submitted that the pending claims define allowable subject matter.

No additional fee is due for newly added Claims 18-20.

In accordance with 37 C.F.R. 1.136(a), a one month extension of time is submitted herewith to extend the due date of the response to the Office Action dated September 26, 2002, for the above-identified patent application from September 26, 2002, through and including January 26, 2002. In accordance with 37 C.F.R. 1.17(a)(1), authorization to charge a deposit account in the amount of $110.00 to cover this extension of time request also is submitted herewith.

The specification has been amended to correct clerical errors therein.

Submitted herewith is a request for approval of drawing changes adding reference characters to Figures 5 and 6 to secure substantial correspondence with the specification. Applicants respectfully request approval of the indicated drawing change. Upon approval of the

drawing change, Applicants will submit substitute drawings incorporating the above-noted changes.

The rejection of Claims 1 and 2 under 35 U.S.C. § 102(e) as being anticipated by Chen (U.S. Patent No. 6,402,561) is respectfully traversed.

It is submitted that Chen does not describe the use of differential pairs in combination with ground contacts. Chen describes an electrical connector including a seat (10) including grooves (101) located in two different planes. Wires (41), (43), (45), (47) are located in one plane and wires (42), (44), (46), (48) are located in another plane. A pressing element (20) is secured to seat (10) to maintain the wires therein. The wires are not described to be in differential pairs.

Further, Chen does not include an impedance adjusting insert as recited in Claim 1. In Chen, the pressing element (20) simply holds the wires (41)-(48) in place. The pressing element (20) is not configured to, nor is described to, tune or adjust impedance. The pressing element (20) also lacks any separate structure that could be considered an impedance adjusting insert. It is therefore submitted that Claim 1 is patentable over Chen.

For the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1 and 2 as unpatentable over Chen be withdrawn.

The rejection of Claims 1 and 4-6 under 35 U.S.C. § 102(b) as being anticipated by Fogg et al. (U.S. Patent No. 5,975,960) is respectfully traversed.

Fogg et al. do not describe at least two signal contacts arranged as a differential pair and at least one ground contact as recited in Claim 1. Fogg et al. describe a connector including a contact insert (20) including contact channels (58) receiving differential pairs of signal wires. Specifically four differential pairs of signal wires are described, namely wires (41) and (42), wires (43) and (46), wires (44) and (45), and wires (47) and (48). None of wires (41)-(48) constitute ground contacts. Claim 1 is therefore submitted to be patentable over Fogg et al.

With respect to Claim 4, it is respectfully submitted that Fogg et al. neither describes nor suggests orientating an impedance adjusting insert to be parallel to a first plane in which the signal contacts of a differential pair are arranged. Rather, it is evident from Figure 2 of Fogg et al. that the signal wires (43) and (46) and signal wires (44) and (45) are located diagonally from one another. Consequently, the differential pairs for contacts (43), (46), (44), (45) are located in intersecting planes that are oblique to the non-ohmic plates (20), (30). Moreover, contact wires (41) and (42) and (47) and (48) of the remaining differential pairs are located in a plane perpendicular to a plane containing the non-ohmic plates (30), (32). Consequently, it is submitted that Claim 4 is patentable over Fogg et al.

For the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1 and 4-6 as unpatentable over Fogg et al. be withdrawn.

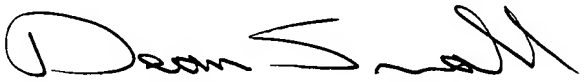
The rejection of Claims 7 and 8 under 35 U.S.C. § 103 as being unpatentable over Chen in view of Rothermel et al.(U.S. Patent No. 6,384,341), the rejection of Claims 3 and 11-17 as upatentable over Fogg et al. in view of Rothermel et al., and the rejection of Claims 9 and 10 as upatentable over Chen in view of Rothermel et al. and further in view of Arnett et al. is each respectfully traversed. It is respectfully submitted that the present Section 103 rejections are improper.

The Rothermel et al. reference and the present application were, at the time the invention was made, commonly owned by Tyco Electronics Corporation. It is noted that the Rothermel et al. reference issued on May 7, 2002, subsequent to the filing date of January 16, 2002 of the present application. Therefore, as applied in the instant rejection, Rothermel et al. is commonly owned prior art used only as a Section 102(e)/103 reference. 35 U.S.C. § 103(c) prohibits use of a Section 102(e)/103 references in such circumstances. See M.P.E.P. § 2146. Under §103(c), Rothermel et al. may not be considered in combination with other references in a Section 103 rejection.

For the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 7 and 8, the rejection of Claims 3 and 11-17, and the rejection of Claims 9 and 10, each of which relies on Rothermel et al. in combination with other references, be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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APPENDIX

Version with Markings to Show Changes Made

IN THE SPECIFICATION

Please replace paragraph [24] with the following paragraph:

[24] Figure 4 is an isometric view of an impedance tuner 200 with impedance adjusting inserts 402 formed in accordance with an embodiment of the present invention. The impedance adjusting inserts 402 may be a non-ferrous metal, such as brass and the like. The impedance adjusting inserts 402 have tabs 404 located on their sides, extending laterally therefrom. The impedance adjusting inserts 402, each having a width W_M, are positioned within the insert receptacles 202 such that the tabs [402] 404 are received and frictionally retained by the notches 204. The retaining bases 218 support the impedance adjusting inserts 402. When the impedance tuner 200 is positioned with the connector 100, the impedance adjusting inserts 402 are positioned over differential pairs 124, as further discussed below.

Please replace paragraph [29] with the following paragraph:

[29] The impedance adjusting inserts [204] 402 are spaced apart from one another so that there is little or no coupling between them. For example, the width of the insert dividing wall 224 may be the width of a ground tail [132] 133, so long as each impedance adjusting insert 204 overlaps signal contacts 136 of a differential pair 124.

Please replace paragraph [36] with the following paragraph:

[36] Figure 6 is an isometric view of an impedance controlled connector assembly [500] 600 formed in accordance with an embodiment of the present invention. The assembly 600 includes dielectric insert 602 having contact channels 604. The assembly 600 differs from the assembly 500 in that the dielectric insert 602 is inserted from underneath the contacts 122 and

126 through an opening [610 I] 601 in the connector base [601], as opposed to being positioned over the contacts 122 and 126. The contacts 122 and 126 rest on the contact channels 604, which conform to the contours of the contacts 122 and 126. As shown with respect to Figure 6, the dielectric insert 602 does not include metallic inserts.

IN THE CLAIMS

1. (once amended) A connector assembly, including:

a connector housing[having a contact retaining chamber at one end of said connector housing];

at least two signal contacts arranged as a differential pair and at least one ground contact held in said [contact retaining chamber of said] connector housing, said at least two signal contacts being separated by a gap;

an impedance tuner block insertable into said [contact retaining chamber] connector housing, said impedance tuner block having at least two channels notched therein, said impedance tuner block including isolation layers formed of a dielectric material and separating said channels, each channel receiving a corresponding one of said signal contacts and each isolation layer being inserted between adjacent signal contacts when said impedance tuner block is inserted into said [contact retaining chamber] connector housing, said impedance tuner block including an impedance adjusting insert.

3. (once amended) The connector assembly of claim 1 further including a plurality of differential pairs of signal contacts, and a ground contact[s] separating each of said differential pairs, wherein said impedance tuner block includes a plurality of isolation ribs as said isolation layers, said differential pairs being separated from said ground contacts by said isolation ribs.

4. (once amended) The connector assembly of claim 1 [further including] wherein said signal contacts in said differential pair are arranged in a first plane and wherein said impedance

tuner block retains said at least one impedance adjusting insert [securable to said impedance tuner block in a position that is] oriented parallel to [a portion of said signal contacts] said first plane.

5. (once amended) The connector assembly of claim 1 further including [a metal] an impedance adjusting insert securable to said impedance tuner block adjacent to said at least two channels to overlap corresponding signal contacts received in said at least two channels.

6. (once amended) The connector assembly of claim 1 [further including an] wherein said impedance adjusting member is held [in said contact receiving chamber] adjacent [a corresponding] said differential pair.

7. (once amended) An apparatus for controlling impedance within an electrical connector assembly including a housing[; a cavity;] and a plurality of signal contacts and a ground contact[s] held in [and exposed within the cavity] said housing, [the] said signal contacts being arranged in a differential pair[s], said apparatus comprising:

an impedance tuner formed of a dielectric material different than air and adapted to be interchangeably secured [in the cavity in the] in said housing, said impedance tuner including [a plurality of] dielectric isolation ribs along a side of said impedance tuner mating [the] with the signal contacts, said impedance tuner being positioned [within the cavity] proximate the signal and ground contacts, wherein [the tails on] signal contacts of the differential pair[s] are separated from [tails on] the ground contact[s] by one of said isolation ribs.

9. (once amended) The apparatus of claim 7 wherein said impedance tuner further includes:

at least one impedance adjusting [metal] insert removably secured to said impedance tuner, said at least one impedance adjusting [metal] insert being oriented parallel to [said signal contacts, and said at least one metal insert overlaps a portion of one of the differential pairs of signal contacts] a plane in which said signal contacts are arranged.

10. (once amended) The connector assembly of claim 7 further including [a metal] an impedance adjusting insert securable to said impedance tuner block adjacent said [at least two channels to overlap corresponding] signal contacts of said differential pair received in said [at least two channels] isolation ribs.

11. (once amended) A system for controlling impedance within an electrical connector assembly, comprising:

an electrical connector including:

a housing[;

a cavity]; and

a plurality of signal contacts and ground contacts held in, and exposed from, said [cavity] housing, said signal contacts being arranged in differential pairs;

an interchangeable impedance tuner formed of a dielectric material different than air, said interchangeable impedance tuner, comprising:

an impedance adjusting [metal] insert; and

an insert receptacle for receiving said at least one [metal] insert,

said impedance tuner being positioned within said [cavity] housing proximate said plurality of signal contacts and ground contacts, wherein said impedance adjusting [metal] insert is oriented parallel to said signal contacts, and wherein said impedance adjusting [metal] insert overlaps at least two signal contacts.

14. (once amended) The system of claim 11 wherein said at least one impedance adjusting [metal] insert is a non-ferrous metal.

15. (once amended) A system for controlling impedance within an electrical connector assembly, comprising:

an electrical connector including[:

a housing;

[a cavity;] and

a plurality of signal contacts and ground contacts held in, and exposed from, said [cavity] housing, said signal contacts being arranged in differential pairs;

an interchangeable impedance tuner formed of a dielectric material different than air, said interchangeable impedance tuner including:

a plurality of dielectric isolation ribs;

an impedance adjusting [metal] insert; and

an insert receptacle for receiving said at least one [metal] insert,

said impedance tuner being positioned within said [cavity] housing proximate said plurality of said signal contacts and ground contacts, wherein one of said plurality of dielectric isolation ribs is positioned between two adjacent signal and ground contacts, wherein said impedance adjusting [metal] insert is oriented parallel to said signal contacts, and wherein said impedance adjusting [metal] insert overlaps at least two signal contacts.

17. (once amended) The system of claim 15 wherein said at least one [metal] insert is a non-ferrous metal.